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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,186	01/20/2004	Tomikazu Sakaguchi	0073/014001	7707

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SMITH PATENT OFFICE  
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WASHINGTON, DC 20006

EXAMINER

KO, TONY

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/759,186

Applicant(s)

SAKAGUCHI, TOMIKAZU

Examiner

Tony Ko

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 2-5 and 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 6-15 and 20-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 6-15 and 20-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakaguchi (U.S. Patent 5,003,169) in view of Shteynberg (US006635862B2).

1. Regarding claims 1, 6-15 and 20-27, Sakaguchi discloses (Figs. 1, 19, 32) a multi-optical axis photoelectric sensor comprising: a main element (11) holder including a plurality of light guide housings (covers for 11) each having an optical element (9) therein, said main element holder having a first engagement portion (122); an additional element (12) holder including a plurality of light guide housings disposed along a longitudinal axis of said main element holder, each having an optical element therein, said additional element holder having a second engagement portion (119) capable of mechanically engaging and disengaging said first engagement portion of said main element holder; wherein said main element holder and said additional element holder are disposed so that said plurality of light guide housings of said additional element holder and said plurality of light guide housings of said main element holder are disposed in a line when said additional element holder is engaged with said main element holder by said first and second engagement portions. Sakaguchi also

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discloses the plurality of light guide housings in said main element holder and said plurality of light guide housings in said additional element holder are equally spaced.

Sakaguchi also discloses the second engagement portion of said additional element holder and said first engagement portion of said main element holder are engaged by relative movement between said first engagement portion and said second engagement portion. Sakaguchi also discloses the relative movement includes movement of at least one of said main element holder and said additional element holder parallel to a longitudinal axis of at least one of said main element holder and said additional element holder. Sakaguchi also discloses (Fig. 28) the relative movement includes movement of at least one of said main element holder and said additional element holder perpendicular to a longitudinal axis of at least one of said main element holder and said additional element holder. Sakaguchi also inherently discloses each of said optical elements has a coupling terminal extending backwardly from a rear surface (i.e. leads connects to the circuit board) of said optical element, and said multi-optical axis photoelectric sensor further comprises: a main circuit (10) board disposed at a rear surface of said main element holder; and an additional circuit board (8) disposed at a rear surface of said additional element holder; wherein said main circuit board and said additional circuit board are formed with holes (all circuit boards inherently contain holes) therein and said coupling terminal of one of said optical elements is respectively disposed in one of the holes and respectively contacts at least one of said main circuit board and said additional circuit board. Sakaguchi also discloses the main circuit board and said additional circuit board are electrically coupled to each other through a

connector (118). Sakaguchi also discloses the main element holder and said additional element holder, it inherently includes a coupling terminal (leads of the LED) extending outwardly from a side surface of said optical element, and said multi-optical axis photoelectric sensor further comprises: a first circuit board disposed parallel to the light guide housings arranged in said main element holder; wherein said first circuit board and said additional circuit board include notches (holes on the circuit board where LED and circuit board connects) therein and said coupling terminal is respectively disposed in one of the notches and respectively contacts at least one of said first circuit board and said additional circuit board. Sakaguchi also discloses a control board (65) including a control circuit for said multi-optical axis photoelectric sensor, said control board being disposed along a rear surface of said main element holder so that said control board is orthogonal to said first circuit board. Sakaguchi also discloses the first circuit board and said additional circuit board are electrically coupled to each other through a connector (70). Sakaguchi also discloses the first circuit board and said control board are electrically coupled to each other through a connector (the wire connecting 65 and the board). Sakaguchi also discloses the optical element is a light emitting element (7). Sakaguchi also discloses the optical element is a light receiving element (9). Sakaguchi also discloses (Fig. 21) a multi-optical axis photoelectric sensor comprising: a first main element holder including a plurality of light guide housings each having an optical projecting element therein, said first main element holder having a first engagement portion; a first additional element holder including a plurality of light guide housings each having an optical projecting element therein, said first additional element

holder having a second engagement portion capable of mechanically engaging and disengaging said first engagement portion of said first main element holder; wherein said first main element holder and said first additional element holder are disposed so that said plurality of light guide housings of said first additional element holder and said plurality of light guide housings of said first main element holder are disposed in a first line when said first additional element holder is engaged with said first main element holder by said first and second engagement portions, said multi-optical axis photoelectric sensor further comprises: a second main element holder including a plurality of light guide housings each having an optical receiving element therein, said second main element holder having a third engagement portion; a second additional element holder including a plurality of light guide housings each having an optical receiving element therein, said second additional element holder having a fourth engagement portion capable of mechanically engaging and disengaging said third engagement portion of said second main element holder; and wherein said second main element holder and said second additional element holder are disposed so that said plurality of light guide housings of said second additional element holder and said plurality of light guide housings of said second main element holder are disposed in a second line when said second additional element holder is engaged with said second main element holder by said third and fourth engagement portions. Sakaguchi does not disclose said second engagement portion of said additional element holder and said first engagement portion of said main element holder are engaged by relative movement of at least one of said main element holder and said additional element

holder perpendicular to a longitudinal axis of at least one of said main element holder and said additional element holder; and wherein said first engagement portion of said main element holder is located between at least two of said plurality of light guide housings disposed along the longitudinal axis of said main element holder; wherein said second engagement portion having a cantilever portion, which is projected from one end of said additional element holder, is disposed in said first engagement portion of said main element holder and said second engagement portion of said additional element holder is located between at least two of said plurality of light guide housings disposed along the longitudinal axis of said additional element holder. Shteynberg discloses (Fig. 6) said second engagement portion of said additional element holder and said first engagement portion of said main element holder are engaged by relative movement of at least one of said main element holder and said additional element holder perpendicular to a longitudinal axis of at least one of said main element holder and said additional element holder; and wherein said first engagement portion of said main element holder is located between at least two of said plurality of light guide housings disposed along the longitudinal axis of said main element holder; wherein said second engagement portion having a cantilever portion (140), which is projected from one end of said additional element holder, is disposed in said first engagement portion of said main element holder and said second engagement portion of said additional element holder is located between at least two of said plurality of light guide housings disposed along the longitudinal axis of said additional element holder. It would have been obvious to a person of ordinary skill in the art at the time of the invention to place

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the second engagement portion of said additional element holder and said first engagement portion of said main element holder are engaged by relative movement of at least one of said main element holder and said additional element holder perpendicular to a longitudinal axis of at least one of said main element holder and said additional element holder; and wherein said first engagement portion of said main element holder is located between at least two of said plurality of light guide housings disposed along the longitudinal axis of said main element holder; wherein said second engagement portion having a cantilever portion, which is projected from one end of said additional element holder, is disposed in said first engagement portion of said main element holder and said second engagement portion of said additional element holder is located between at least two of said plurality of light guide housings disposed along the longitudinal axis of said additional element holder to improve the flexibility of the photoelectric switch.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1, 6-15, and 20-27 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP



§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Ko whose telephone number is 571-272-1926. The examiner can normally be reached on Monday-Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TKO



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